

高等学校试用教材

# 英 语

第三册

北京大学公共英语教研室

杜秉正 主编

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本册是北京大学公共英语教研室杜秉正、赵琰、王家福、郑培蒂、沈一鸣等同志编写的《英语》第一、二册的后续教材，可供高等学校理科各专业作试用教材使用，亦可供其他有关专业及中学教师、科技人员参考使用。

参加本册编写工作的，除主编外，还有郑培蒂、沈一鸣同志。在编写和定稿过程中，承北京大学赵萝蕤、王岷源、赵琰、董桂枝、王家福、董眉君等同志提供了宝贵意见。

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## Lesson One

### Lunar Explorers

It is not possible for us to admit that there is life of any sort on the Moon. It is a world that is completely and utterly dead, a sterile mountainous waste on which during the day the sun blazes down with great heat, but where during the long night the cold is so intense that it far surpasses anything ever experienced on the Earth.

But now the lunar explorers can land there by a rocket. They need to be encased in airtight suits and provided with oxygen apparatus for their breathing. Their suits must be completely bullet proof, for they are in danger of being shot by a shooting star. The average shooting star or meteor, which gives so strongly the impression of a star falling from the sky, is a small fragment of matter usually smaller than a pea and often no larger than a grain of sand. Space is not empty but contains great numbers of such fragments. The Earth, in its travelling around the Sun, meets many of these fragments, which enter the atmosphere at a speed many times greater than that of a rifle bullet. The meteor, rushing through the air, becomes intensely heated by friction and is usually completely vaporised before it has penetrated within a distance of twenty miles from the surface of the Earth. Many millions of these fragments enter our atmosphere in the course of a day, but the atmosphere protects us from them. On the

moon, however, they fall to the surface and so great is their number that the lunar explorers run a considerable risk of being hit.

The difficulties that the lunar explorers have to encounter are incomparably greater than those that have to be faced in the endeavour to reach the summit of Mount Jolmo Lungma. Only in two respects do the lunar explorers have the advantage. In the first place movement is less fatiguing because the gravitational pull of the Moon is not very great, the weight of the Moon being only about one-eightieth of that of the Earth. The second advantage they have over the climbers on Mount Jolmo Lungma is the absence of strong winds for them to contend against. Since the Moon has no atmosphere, there can be no wind; nor, of course, can there be any noise because of sound being carried by the air. The Moon is a world that is completely still and where utter silence prevails.

### New Words and Expressions

- |   |   |
|---|---|
| 1. lunar ['lu:nə] <i>a.</i> 月的                | 9. surpass [sə'pɑ:s] <i>vt.</i> 超过              |
| 2. explorer [ik'splɔ:rə] <i>n.</i><br>探险者     | 10. rocket ['rɒkit] <i>n.</i> 火箭                |
| 3. admit [əd'mit] <i>vt.</i> 承认               | 11. encase [in'keis] <i>vt.</i> 包装,<br>包裹       |
| 4. utterly ['ʌtəli] <i>ad.</i> 全然,<br>十足      | 12. airtight ['eətaɪt] <i>a.</i> 密封的            |
| 5. sterile ['sterail] <i>a.</i><br>无微生物的; 贫瘠的 | 13. suit [sju:t] <i>n.</i> 服装                   |
| 6. waste [weist] <i>n.</i> 荒地                 | 14. provide [prə'vaɪd] <i>vt.</i> 供给,<br>供应     |
| 7. blaze <i>vi.</i> 燃烧; 发(强)光                 | 15. apparatus [ˌæpə'reɪtəs] <i>n.</i><br>装置; 设备 |
| 8. intense [in'tens] <i>a.</i> 强烈的            | 16. bullet ['bulɪt] <i>n.</i> 子弹                |

- |   |  |
|---|--|
| <p>17. proof [pru:f] <i>a.</i> 能防护的</p> <p>18. danger ['deɪndʒə] <i>n.</i> 危险<br/>in danger of 有…的危险</p> <p>19. meteor ['mi:tjə] <i>n.</i> 流星</p> <p>20. fragment ['frægmənt] <i>n.</i><br/>碎片</p> <p>21. pea <i>n.</i> 豌豆</p> <p>22. empty ['empti] <i>a.</i> 空的</p> <p>23. rifle ['raɪfl] <i>n.</i> 步枪</p> <p>24. rush [rʌʃ] <i>vi.</i> 冲</p> <p>25. friction ['frɪkʃn] <i>n.</i> 摩擦</p> <p>26. vaporise ['veɪpəraɪz] <i>v.</i><br/>(使)汽化</p> <p>27. penetrate ['penɪtreɪt] <i>vt.</i><br/>透入; 穿透</p> <p>28. protect [prə'tekt] <i>vt.</i> 保护<br/>protect... from 保护…<br/>免受…</p> <p>29. risk <i>n.</i> 冒险<br/>run a risk of 冒…风险</p> <p>30. encounter [ɪn'kaʊntə] <i>v.</i><br/>遭遇</p> | <p>31. incomparably<br/>[ɪn'kɒmpərəbli]<br/><i>ad.</i> 无可比拟地</p> <p>32. endeavour [ɪn'devə] <i>n.</i> 努力</p> <p>33. summit ['sʌmɪt] <i>n.</i> 最高峰</p> <p>34. Mount Jolmo Lungma<br/>[maʊnt 'dʒɒlməʊ'lʊŋmə:]<br/>珠穆朗玛(峰)</p> <p>35. advantage [əd'vɑ:ntɪdʒ] <i>n.</i><br/>优点; 有利条件<br/>have an advantage over<br/>胜过…, 比…优越</p> <p>36. fatigue [fə'ti:g] <i>vi.</i> 疲劳</p> <p>37. climber ['klaɪmə] <i>n.</i><br/>登山的人</p> <p>38. absence ['æbsəns] <i>n.</i> 缺乏</p> <p>39. wind <i>n.</i> 风</p> <p>40. contend (against) [kən'tend]<br/><i>vi.</i> 斗争</p> <p>41. noise [nɔɪz] <i>n.</i> 噪声</p> <p>42. prevail [pri'veɪl] <i>vi.</i> 流行</p> |
|---|--|

### Notes to the Text

1. It is not possible for us to admit that...

It 用作形式主语, 真正主语是 for us to admit. 关于这种带逻辑主语的不定式结构的用法, 见本册第二课语法。又如 the absence of strong winds for them to contend against 中的 for them to contend against 也是带逻辑主语的不定式结构, 用作定语, 说明 winds。

2. Only in two respects do the lunar explorers have the advantage.



只有在两点上，月球探险者占有优势。

用 *only* 加一状语开头的句子，要用倒装语序；本句中把 *do* 放在 *the lunar explorers* 之前。

3. *the weight of the Moon being only about one-eightieth of that of the Earth*

月球的重量仅仅是地球重量的八十分之一左右

这是带逻辑主语的分词结构，用作状语，作为补充说明。关于这种结构的用法，见本册第三课语法。

## Grammar

**带逻辑主语的动名词结构** 动名词的逻辑主语往往用一个名词或代词的所有格（如不在句首，名词也可用普通格）放在动名词前面来表示。这种结构可用作

1. 主语：

*His going deep among the masses gave us a good impression.*

他深入群众给我们一个好印象。

2. 动词或介词的宾语：

*I don't remember Lao Li having written something about radio.*

我不记得老李写过有关无线电的文章。

*We agreed to your doing the test.*

我们同意你做这个试验。

## Exercises

I. 英译汉，找出带逻辑主语的动名词结构，并说明它在句中的作用：

1. Comrade Wang did not insist on his sister's changing her plan.
2. We support his going on with the research work.
3. Comrade Li's trying this new method will lead him to success.
4. There can be no doubt about his being able to do the work.
5. Have you heard of their being possible to help us?
6. There was no need of both of them making the same experiment.
7. I am afraid of your being late for the train.

8. Germs, because of their small size, enter our bodies without our knowing it.
9. The attachment (*n. 结合*) of atoms of different kinds to each other is responsible for compounds having characteristic properties different from those of the elements of which they are made.
10. Because of sound being carried by the air, there can be no noise on the moon.

II. 英译汉，注意斜体字部分：

1. *During the day* the sun blazes down on the moon with great heat.
2. The lunar explorers need *to be provided with* oxygen apparatus for their breathing.
3. Now it is possible for men *to land* on the moon by a rocket.
4. We know that the lunar explorers are often *in danger of* being shot by a shooting star.
5. The atmosphere *protects us from* millions of the fragments which rush through the air at a speed many times greater than that of a rifle bullet.
6. Comrade Ma *has an advantage over* his brother in many respects.
7. Since the moon has no atmosphere, there are no strong winds for the lunar explorers *to contend against*.
8. Plants cannot grow well *in the absence of* water.
9. *It is generally admitted* that the moon is a world where utter silence prevails.
10. The meteor is usually completely vaporised before it has penetrated *within a distance of* twenty miles from the earth's surface.

## Reading Material

### The Moon

Just think of daytime on the moon lasting nearly fourteen of our days! For nearly fourteen days the surface is baked in the merciless heat

of the sun. This explains the desolation which lies all around us. We see no signs of life, for life as we know it cannot live where there is practically no atmosphere and where there are such great changes of temperature. We find no water nor even traces of water because of the moon having no water on its surface. We hear no sound because of sound being carried by the air. The moon is really a world that is completely still and where utter silence prevails.

Of all the many different objects on the Moon, the ringed mountains or craters are the most striking. Many of them are just a few miles across but several are 60 or 70 miles in diameter. Sometimes, when the sun is low in the lunar sky, these and other giant craters look like deep pits. This is only because their mountains cast long shadows which stretch right across the crater floor. Their being not deep at all is due to the fact that they are really saucer-like hollows.

- |   |  |
|---|--|
| 1. bake <i>vt.</i> 烤                      | 7. striking <i>a.</i> 显著的                        |
| 2. merciless ['mə:sɪləs] <i>a.</i><br>残忍的 | 8. pit <i>n.</i> 坑                               |
| 3. desolation <i>n.</i> 荒凉                | 9. stretch [stretʃ] <i>vi.</i> 延伸                |
| 4. trace <i>n.</i> 痕迹                     | 10. saucer-like ['sɔ:sə-laɪk] <i>a.</i><br>像茶碟似的 |
| 5. ring <i>vt.</i> 围住                     | 11. hollow ['hɒləʊ] <i>n.</i> 凹地, 穴              |
| 6. crater ['kreɪtə] <i>n.</i> 火山口         |  |

## Lesson Two

### How Sound Travels

Our earth is full of sound because it is full of motion, like trucks rolling along the highway or jets zooming into the sky.

Sometimes a sound is far away and yet it is often possible for us to hear it clearly. We may hear a jet droning so far above the earth that we can barely see it.

How do such far-away sounds travel toward our ears? This, too, has something to do with motion.

All sounds travel to our ears in about the same way and come to us in waves that can be seen only with special electronic equipment.

Most of the sound waves that reach our ears travel through the air, but sound can also travel through water. In still air, sound travels about one kilometer in three seconds. If there is a wind, the sound will go faster in the direction of the wind. Against the wind, it will go more slowly.

Through water, sound travels much faster than through air — about one and half kilometers in one second. If sound passes through iron, it will speed along five kilometers in one second, about fifteen times as fast as through air.

With a long iron pipe we can make an interesting experiment. Tap one end of the pipe with a hammer. When the ear is put close to the other end, two sounds can be heard

with one blow of the hammer if the pipe is long enough. The sound through the iron comes more quickly than that through the air. The longer the pipe, the later the sound will be heard through the air. Thus we may see that sound travels through different substances with different velocities.

Now we know that sound moves and travels. But what kind of movement causes sound waves to start travelling outward in all directions?

Sound is caused by vibrations. A vibration is simply a back and forth movement.

Stretch an elastic band tightly between two nails that are fastened to a wooden board. When we pull back on the band and then let go, it will suddenly jump forward. But before it returns to its original position the elastic band will quickly move back and forth a number of times — in other words, it will vibrate.

If we look very carefully, we can see that this happens within a few seconds. If we listen closely, we may hear the faint humming sound made by the vibrations.

It is such vibrations that make sound waves. It is evident for strong vibrations to make loud sounds and for weak vibrations to make soft sounds.

### New Words and Expressions

- |                                   |                                      |
|-----------------------------------|--------------------------------------|
| 1. motion <i>n.</i> 运动            | 5. jet <i>n.</i> 喷气飞机                |
| 2. truck <i>n.</i> 卡车             | 6. zoom [zu:m] <i>vi.</i> 轰轰响;<br>攀升 |
| 3. roll [rɔ:l] <i>vi.</i> 滚动      | 7. yet <i>ad.</i> 还; 仍然              |
| 4. highway [ˈhaɪwei] <i>n.</i> 公路 |                                      |

- |  |                                       |
|--|---------------------------------------|
| 8. drone <i>vi.</i> 嗡嗡叫 <i>n.</i> 雄蜂                         | 18. stretch [stretʃ] <i>vt.</i> 拉紧    |
| 9. barely <i>ad.</i> 仅仅, 几乎没有                                | 19. elastic [i'laestik] <i>a.</i> 弹性的 |
| 10. electronic [ilek'trɒnik] <i>a.</i><br>电子的                | 20. band <i>n.</i> 带                  |
| 11. equipment [i'kwipmənt] <i>n.</i><br>设备                   | 21. fasten ['fa:sn] <i>vt.</i> 扣紧     |
| 12. tap <i>vt.</i> 轻拍  | 22. wooden ['wudn] <i>a.</i> 木头的      |
| 13. velocity [və'lesəti] <i>n.</i> 速度                        | 23. board [bɔ:d] <i>n.</i> 木板         |
| 14. movement ['mu:vmənt] <i>n.</i><br>运动                     | 24. let go 放掉                         |
| 15. outward ['autwəd] <i>ad.</i> 向外                          | 25. forward ['fɔ:wəd] <i>ad.</i> 向前   |
| 16. vibration [vai'breɪʃn] <i>n.</i><br>振动                   | 26. in other words 换句话说               |
| 17. forth <i>ad.</i> 向前<br>back and forth 来来往往<br>地, (前后) 来回 | 27. vibrate <i>vi.</i> 振动             |
|  | 28. faint <i>a.</i> 微弱的               |
|  | 29. hum <i>vi.</i> 嗡嗡响                |
|  | 30. evident ['evidənt] <i>a.</i> 明显的  |
|  | 31. loud <i>a.</i> 响亮的                |
|  | 32. soft <i>a.</i> 柔和的                |

## Grammar

**带逻辑主语的不定式结构** 不定式前往往用介词 *for* 引入它的逻辑主语。这种 “*for* + 名词 (或代词) + 不定式” 结构可用作

1. 主语:

*It is of first importance for us to study Chairman Mao's works.*  
我们学习毛主席著作是头等重要的事。

2. 宾语:

*We think it possible for them to fulfil their production plan in a few weeks.*

我们认为他们几周内完成生产计划是可能的。

3. 定语:

*That was probably the best way for us to overcome the difficulties.*

那也许是我们克服困难的最好方法。

4. 状语:

This question is too difficult *for him to answer*.

这个问题太难, 他答不了。

He opened the window *for the fresh air to come in*.

他打开窗子好让新鲜空气进来。

## Exercises

### I. 英译汉, 找出带逻辑主语的不定式结构, 并说明它在句中的作用:

1. It takes a whole year for the earth to travel round the sun once.
2. It is easy for us to understand that the space close to the earth is much smaller than the far-away outer space.
3. There are always new problems for scientists to work on.
4. It is a great help for us to be able to get oxygen from some of the compounds and mixtures it is hidden in.
5. Why is it often possible for you to hear a far-away sound clearly?
6. Do you have anything more for me to do?
7. In order for an earth satellite to stay in an orbit above the earth's surface, the speed it needs is about 5 miles a second.
8. The teacher considers it important for the students to remember that simply mixing two materials may bring about a chemical change.
9. It would take millions of molecules to make a speck big enough for you to see with a microscope.
10. An increase in the temperature of a volume of gas produces an increase in the internal pressure within the gas and the result is a tendency for the gas to expand.

### II. 用介词填空, 把句子译成汉语:

1. \_\_\_\_\_ water, sounds travels much faster than \_\_\_\_\_ air.

2. Let us stretch an elastic band tightly \_\_\_\_\_ two nails that are fastened \_\_\_\_\_ a wooden board.
3. All sounds travel \_\_\_\_\_ our ears \_\_\_\_\_ about the same way.
4. Sound will go faster \_\_\_\_\_ the direction of wind than \_\_\_\_\_ it.
5. The speed of sound will vary \_\_\_\_\_ the substances \_\_\_\_\_ which it travels.
6. The earth we live \_\_\_\_\_ is full \_\_\_\_\_ motion.
7. Have you ever heard a jet droning far \_\_\_\_\_ the earth?
8. On the moon there are no strong winds for lunar explorers to contend \_\_\_\_\_.
9. Now it is possible to separate the electrons of an atom \_\_\_\_\_ its nucleus.
10. Since sound waves are made by vibrations, it is evident \_\_\_\_\_ strong vibrations to make loud sounds and \_\_\_\_\_ weak vibrations to make soft sounds.

## **Reading Material**

### **Diffusion**

If a bottle of ammonia is opened in one corner of a closed room, the odor is soon apparent in all parts of the room even though there are no air currents. Why is it possible for the ammonia molecules to reach you? It is because of their moving quickly through the air. The molecules in the air of the room are relatively far apart. As the ammonia molecules move, they pass between the molecules of the air with occasional collisions. Some of the molecules reach every part of the enclosure in a short time. The process of one substance mixing with another because of molecular motion is called diffusion. If the gas is confined in a small container and the pressure is reduced, diffusion takes place more rapidly, for the gas molecules are farther apart and collisions are less frequent.



The process for liquids to diffuse into one another is slower than that of gases. The diffusion of solids is much less marked than the diffusion of gases and liquids, but it is known to occur. Mercury, for example, appears to diffuse through lead at ordinary temperatures.

- |  |  |
|--|--|
| 1. diffusion [di'fju:ʒn] <i>n.</i> 扩散      | 7. collision [kə'liʒn] <i>n.</i> 碰撞          |
| 2. ammonia [ə'məuniə] <i>n.</i><br>氨(阿摩尼亚) | 8. enclosure [in'kləʊʒə] <i>n.</i><br>范围; 围墙 |
| 3. corner <i>n.</i> 角落                     | 9. rapidly ['ræpidli] <i>ad.</i> 迅速地         |
| 4. odo(u)r ['əʊdə] <i>n.</i> 气味            | 10. frequent ['fri:kwənt] <i>a.</i><br>频繁的   |
| 5. apparent [ə'pærnt] <i>a.</i> 明显的        | 11. mercury ['mæ:kjuri] <i>n.</i> 水银         |
| 6. occasional [ə'keiʒnl] <i>a.</i><br>偶然的  |  |